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A  
VINDICATION  
OF SOME  
OBJECTIONS  
Lately RAISED Against  
Dr. JOHN COLBATCH  
HIS  
HIPOTHESIS.

Together with  
Some *Observations* on his *ESSAY*  
of *ALKALI* and *ACID* and it's  
*APPENDIX.*

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By Dr. Francis Cuthill of Dorchester.

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*Via trita, via tuta.*

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L O N D O N,  
Printed for A. and J. Churchill, and for Robert  
Gaylard Bookseller in Dorchester, 1698.

VINDICATION

OF SOME

OBJECTIONS

TO A REPLY

TO A CHARGE

AND

HYPOTHESIS

OF

THE NATURE OF THE

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*Worthy S I R,*

**I** Have read over the Doctrin of Acids, &c. Your Solutions are very Ingenious: I would fain acquiesce in them, that so I might give neither my Self, or the World any further Trouble; but I assure you I cannot. I am not insensible how dangerous a Thing it is to expose my Self to the common Censure in this scribbling Age; and I had not appeared in Public again, had not some particular Friends, whom I should have disobliged by a Refusal, prest and urg'd me to a fresh Attack. I hope you will meet with nothing of a cavilling Humour, nor any Thing that looks like Insulting in this Treatise; I cannot imagine you will have any Occasion to write a Recantation. No doubt but you will find a Defect in some of my Arguments, and make your Animadversions according to your usual Candour. I would not be thought to patronize Alkalies so

far as to be at Enmity with all Acids. I can entertain a good Opinion of them in many Cases, and hope to see the Use of them Establish'd in those Cases upon surer Foundations than ever. All that I contend for, is, that Alkalies are not of such a poysonous Nature as you represent them. They were created to preserve, in no wise to destroy, us. I shall use the same Method, in replying to your *Answers*, as you have done to my *Objections*: Take 'em in Pieces, and where they seem defective make my *Observation*. The first of my *Objections* did run thus, If Alkalies are the Original of Distempers, then *posito Alkali ponitur morbus*. But this will not hold Good; for all healthy Person's *Serum* is Alkalized, as is evident from it's green Colour when mixt with Syrups of Violets. May not this Phænomenon then arise rather from a due Mixture of the Principles, then from any violated Habit of Blood? Your *Answer* to this is pretty long; but the most material Parts of it are these.

The first of which is, That tho' there are Alkaline Particles in healthy People's Blood, yet not enough to cause a



Distemper. They abound much more in Sick Persons. *Reply*, If you please to compare the Alkaline Spirit, that you extracted from the consumptive Blood, with that which the healthy Blood afforded, you will find no great Disproportion, especially if you consider the *Caput Mortuum* of the sound Blood. For you say, that it being broken into small Atoms, each Atom appeared to be so many little Bodys of Fire in your Microscope. That there is not the least Spark of Fire in the Blood, I shall endeavour to prove anon ; wherefore 'tis not irrational to suppose, that those lucid Atoms were of the Family of Salts: And if Salts, then Alkaline, according to the Rules of your own Hypothesis. But then ( you reply ) the tabid Blood would have yielded much more Alkaly, had the great quantity of luxuriant Alkaly been thrown upon the Lungs. Methinks this seems a little strange. For, if you remember, the consumptive Person did sweat prodigiously. Now you make Sweat to be nothing but an excrementitious Alkaly. If this Alkaly then was carried off in such quantities,

it could not well abound so much in the Lungs.

The second Part of your *Answer* to my first *Objection*, that no Man may be said to enjoy perfect Health ; that this Alkaly, which is found in the Blood of every Man, is the Principle of his Destruction. *Reply*, If this be true, then Old Men, who are near a Dissolution, in whom Nature is almost spent, must needs have their Blood ten-times more deeply tinged with Alkalies than Young Men. This may be so for ought I know. I have experienced nothing to the contrary as yet, having none of your Conveniences at Hand. But I am of Opinion, that if either of us were to distil the Blood of a phlegmatic Aged Constitution, and that of a bilious Juvenile, the latter's Alkalies would not fall short of the formers: My second *Objection* was;

But *Secondly*, There is another way of discovering an Alkaly, besides that of it's Appearance, and that is by it's Effects, viz. it's Fermentation with Spirits of Vitriol. Now I aver this Serum will not ferment with the aforesaid Spirit. I believe I might be somewhat de-

deceiv'd in making this Experiment. For I have found since, that the Spirit of Vitriol was not Good, neither did I allow enough in Proportion to the Serum. But this I have Experimented since with what Care I could. I took such Serum as would turn Syrups of Violets Green, put into a little Pot, and poured some Oyl of Vitriol on it. It immediately became somewhat hot, but 'twas far from being intensely so. I took some more of the same Serum, put it into another Pot, poured Spirit of Sulphur on it. The Spirit gave it a very languid Heat, scarcely exceeding luke-warm. After this I took some grumous Parts of the same Blood, poured some Oyl of Vitriol on them. They grew not so warm as the Serum did with the Oyl: There were very few Degrees of Heat in them. From all which I infer, that, tho' there may be somewhat of an Alkaly in the Blood, which I never deny'd; yet not so great a quantity as you imagin, a general Stock for all Diseases: And indeed upon the Supposal of five Principles in the Blood (which no *Chymist* denies) why might not either those Principles offend and breed Distempers as well

well as the Salts? In *page 67.* you are at a loss how to interpret my warm Particles. *Answer,* I mean Alk. Particles, such as I beleive the Blood abounds with in some Feavors, in which I grant you, that Acids are of Use. But yet I cannot away with your Notion of Feavors. A Feavor (say you in *page 68.*) proceeds from a Constipation of some of the Emunctories, so that the Excrementitious Alkaly, which should be carry'd off by them is detained in the Blood, which by breaking it's Globules, &c. This Doctrin does not seem to correspond at all with your Practice. For, *Spirit. Vitrioli* and other Acids, which are very Stiptic, the Use of which you applaud in Feavors, should methinks constipate the Emunctories more closely: And then they being of a very fixing Nature, should fetter or retain these Excrementitious Alkalies. Again, if Feavors are occasioned only by a Detention of these Alkalies, then it must follow, that whenever they have free Vent, the Feavor must abate. But the contrary has been sometimes experienced; where the Patient has sweated very liberally and yet dy'd at last. If  
this

this will not serve the turn, I hope to make it appear anon, that Alkalies are not capable of breaking the Globules, and making such a Bustle in the Blood : But I cannot but speak one Word or two in their Defence before I go any further. I am very apt to think, that in some Feavors, especially Pestilential and Malignant, the Spirits are primarily affected according to the Hypothesis of the Ingenious Dr. *Morton*, witness those Symptoms which attend the *Genus nervosum* immediately upon the first Seizure. But you must not admit this Notion, the Soyl which you must lodge in the Blood, and thence be communicated to the Spirits. Well, let it be so ; I will not dispute it : The difficulty on your side will be great still. For, tho' I shall readily grant the Globules to be broken in the aforesaid Feavors ; yet, 'twill be a hard Matter to convict Alkalies of those Tragical Disorders. For *first*, Experience shews, that nothing is more proper in those Cases malignant ( I shall adventure to use the Term, notwithstanding it has been so scouted of late ) then *Pulv. è chel. rad. Serpentar.* nay, *Sp. C. C.* it self given in a proper Vehicle.

hicle. But *secondly*, nothing does so readily dissolve the Mass of Blood, or separate it's Principles as Acids, which I shall prove by and by, when I come to speak something of Dropsies. But this long Discourse of the Heat of the Blood, does naturally lead me to consider somewhat of it's Flame.

*First*, And here the Life of Man you take to be a Fire or Flame, and all we Eat and Drink, together with the Air we draw in to be Fuel for this Flame. The chief Arguments you bring to confirm this Doctrin, are taken from the Excrements of this Flame and it's Fuel. The Excrements are Alkalies, which are near of kind to Ashes, the Relicts of other Flames: And for it's *Pabulum*, 'tis Acid and Sulphur the common *Pabulum* of all Flames. Here I must confess you talk very ingeniously, and highly improve the Notions of that great Philosopher. But let us examin this Hypothesis a little. As for Alkalies, I confess they are of the same Nature with Ashes and Soot: Yet it does not follow, that because Alkalies are found in the Blood there must be a Flame too. We extract Alkaly out of several Herbs.

'Tis



Tis true the Herbs must be calcined first. But certainly the Salt was pre-existent in the Herb before the Calcination, or else the Fire produced it *de novo*, which you will by no means admit. The Inference then is plain. I will not adventure to say any Thing of Crabs-Claws, Oyster-Shells, &c. least you should make them the Recrements of a vital Flame. Come we next to the *Pabulum* and that is Acid and Sulphur. That Bodies in which Sulphur is predominant, are inflammable no body questions: But that such in which Acid is the chief Ingredient should burn, looks like a Paradox. To instance in a few: *Acet. Spirit. of Vitriol Suc. Limon. &c.* are so far from promoting Flame, that they immediately quench it: And indeed I know but one Acid in Nature, which is inflammable, and that is *Nitre*. But then this Vital Flame is not of a Nature with Culinary Flames. *Answer*, Since the *Pabulum* is the same, methinks the Flame should be so too. *Again*, tho' you speak so much of this Vital Flame, yet you do not (as I remember) much care to fix the Place of it's Existence. I suppose it must be in the

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the Blood, if any where. Now 'tis very hard to suppose a Flame in that Body, of which no Part is inflammable. If you open a Vein and the Blood spouts out reeking hot on the Fire, it will immediately quench it. So that methinks, these Notions seem to be a little too finely spun. Acid and Sulphur did support human Life, Men live upon Coals, Brimstone, &c. in which there is store of Acid and Sulphur, that we cannot subsist without Air is evident: For tho' there is no Fire in the Blood, there is Motion undoubtedly. Now the Nitro-aereal Particles give a fresh Fermentation ( or Motion ) to it, and free it from Coagulation. If you are not satisfied with this, consult the Ingenious Dr. Mayow. But then the Blood has heat and warmth; and these are the Properties of Fire. *Ans.* May they not be excited by it's Motion? No ( you Reply ) we are much warmer in Bed, when we use no Exercise, then when we are up and in Motion. *Ans.* The Body indeed is in no Motion there; but the Blood is greater then when we are out of our Beds; and 'tis impossible should be otherwise. For, do not the Bed-cloaths protect us from the Coldness

ness of the ambient Air? And are not a great many of the Volatile Alkalies detained by them, which reflecting upon the Body, warm it, and accelerate the Motion of the Blood. But after all, if we move violently, when out of our Beds, we are much warmer, than when in them. You are pleas'd to *Object*, 'tis impossible meer Motion should cause any Heat in fluid Bodies. How so? Let a Man put *Spirit. Corn. Cerv.* and *Spirit. Vitrioli* together and observe their Effects. They will soon grow warm. 'Tis evident, they do not stand still, but move very briskly before they are warm. And what is the Heat of these Bodies occasioned by, but their Fermentation or intestine Motion? Surely it cannot be by Accension. My third *Objection* was this;

But *Thirdly*, If Alkalies are the Original of Distempers, whence is it, that in Dropsies, Catarrhs, some Gouts and other Diseases, we find the Texture of the Blood so thin? 'Tis observable, that those Particles you term Alkalies, the more the Blood is saturated with them, of the more thick Consistence it is, as we see in Pleurisies, Rheumatisms and other

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Inflammatory Cases ( in which Distempers, if in any, the Alkalies abound ) is not then it's Tenuity rather to be imputed to Acids? Do not Acids immediately put the Blood in a Fusion, and render it thin? Your *Answer* to this is, that 'tis not the Thinness of the Blood is the only Cause of these Distempers, but a Destruction of the Tone of the Parts. Here methinks you do not argue so fairly. For, you mention little or nothing of the Destruction of the Tone of the Parts in your Etymologies of Distempers till now. And why may I not as well say, in Inflammatory Cases the Blood is not affected with any Alkaline Particles? These Inflammations only arise from a Destruction of the Tone of the Parts: Especially, if you consider what you asserted in your Notion of Feavors: For there the Emunctories are very much out of Order. But ( you *Object* ) since Acids will reduce the Blood to it's due Consistence, it is not reasonable to suppose they should be the Cause of it's Fusion. *Ans.* Whether Acids will restore the Consistence of the Blood I shall examin by and by: I fear they will not. But this I am certain

rain of, they will put it in a Fusion: 'Tis well known that your celebrated Oyl of Vitriol taken alone, or tho' in a Vehicle; if in too great Quantity, kills. Now how does it kill? Does it not by dissolving the Mass of Blood, by separating the Grumous Parts from the Serous, and breaking it's Texture after the same Manner as it does that of Milk? Sure I am, that Blood coagulated by the aforesaid Oyl, does much more resemble Whey and Curds than Jelly of Harts-horn. Now then, what is all this but an extraordinary Fusion? And if a large Dose will make such mad Work, and put the Blood into so great a Fusion; certainly a less Dose must cause somewhat of a Fusion. And 'tis rational to believe that Oyl of Vitriol is proper only in those Distempers, where the Blood is too thick; very pernicious in such as have it too thin. And here I am very glad, that you so opportunely give us your Sentiments of *Dropsies*. A Dropsie (say you) or the Thinness of Blood in that Disease does not proceed from Acids, but overmuch Drinking. *Ans<sup>r</sup>*. That large Draughts (there being little Evacuation by Urin) render the Blood

more thin is very obvious. But now the Patient had no such desire for Drink, till the Distemper was actually upon him. So that the *Question* is, what first brought on the Distemper. Was it not a Weakness of Blood or Want of due Consistence. I do not see how you can well deny it. But then ( you *Reply* ) let it be so, 'tis Impossible, Acids should occasion this ill Habit of Blood. For, Hydropical People are Thirsty, and 'tis ridiculous to imagin that Acids should excite Thirst, when they are the only Things in the World that will quench it. *Ans.* This I confess, at first Sight, looks like an invincible Argument: But I must crave leave to weigh it a little. That Acids drank or held in the Mouth usually quench Thirst, is an undeniable Truth. Tho' twill hardly hold Good in all Cases. For, let a Man drink Brine, which is very much impregnated with Acids, or eat high-seasoned Meats; I believe tho' he were a *Stoick* he would immediately grow Thirsty. But common Salt is not an Acid of a right Nature. Well, admit this. The most famous Acids that I know for suppressing Thirst, are *Oyl. Vitriol. Spirit. Vitriol. &c.*

Now



Now I hope to make it appear, that these or Acids of the same Nature abounding in the Blood may provoke Thirst. I prov'd just now, that Oyl of Vitriol had an ugly Faculty of coagulating the Blood, or separating it's Serum. That there is a Separation of the Serum in Dropsies is evident: If any Man should deny it, let him look upon the *Abdomen* and extream Parts, and his Eyes are enough to convince him. Well then the Serum being thus separated (pray observe) and the Mass of Blood not enough diluted: The oral Glands must necessarily be defrauded of their due Moisture and consequently Thirst excited. But still you harp upon the same String: Those Medicines which restore the Consistence of the Blood, cannot well be supposed to impair it. Now Acids restore it; and Steel in particular. *Answ.* That Steel is of excellent Use, and a very great Restorative is not to be deny'd. But under Favour, tho' you discourse very ingeniously of the Nature of Steel: Yet all you have said will not amount to a Proof of it's being an Acid. I am still inclined to think it is an Alkaly. For

tho' it does not discover it self to be such by it's Colour, yet, it plainly does by it's Effects, viz. It's Fermentation with Acids. If, notwithstanding this *Phænomenon*, you will needs have it to be an Acid, why then one Acid will ferment with another; and so one Alkaly with another: wherefore, tho' we should subscribe to the *Hypothesis*, that Alkalies are the Original of all Distempers, yet 'tis hard to exclude the Use of them in general in distempers. For some Alkalies or other might be found out that should dispute it with these offending Alkalies. You are pleased to quote *Becker* for a Confirmation of the Acidity of Steel. The chief Sentence of the Citation seems to be this. *Hoc tantum hîc loci allegabo, omne acidum substantiæ martialis esse, in quocunq; oleo, pinguedine, fuliginè, limo, silice & arenâ, imo etiam ipsâ flammâ reperibile, & ad oculum demonstrari posse; quæcunq; ergo naturæ Acidæ & martialis sunt, illa potestatem habent Alkali tanquam substantiam metallorum mercurialem alterandi & transmutandi.* If I apprehend the Sense of the Author, this does not make so much for you. But suppose it did, *Becker*

was



was never reckon'd Infallible. And tho' *Chalybs* were an Acid, it does not follow, because one Acid will renew the State of the Blood, that others will do so too. But since we have so happily fallen on this Subject, viz. the Strengthening the Mass of Blood; let us see what other Medicines besides *Chalybs* are subservient to this End. And here I suppose your bitter Herbs may not be *infimi subsellii*. 'Tis needless to prove it; for hardly any *Physitian* but what has experienced it. I do not believe you will dare to say, there is any Thing of an Acid in these, since you know very well that Alkaly may be extracted from most, if not all of them. So that poor Alkaly is effectual in some Cases you see. But then (*you say*) *Oak-bark, Bistort, Tormentile, Comfrey-roots* and others of that Tribe will reduce the Blood to Consistence. *Answ.* That they are astringent I grant; whether they will reduce the Blood or invigorate it's depauperated Principles, I much question. 'Tis very rare to see them prescribed in *Dropsies, Cackexies* and the like Distempers where the Blood is poor and low. They are proper in-

deed in Fluxes by virtue of their astringent Faculty. But then they owe this Astringency to Acids. Whether they do or not it matters not much. But why may not this Quality be derived as well from the Terrestrious as the Salt Particles of these Vegetables: Since *Bol. Arm. Terra Lemnia* and other plain Earths are very Stiptick. I do not say, these Earths are so simple as to have no manner of Salt in them, but surely they have very little Acid. Another *Object*. was: If Alkalies did always offend and cause Pain, it must follow that Acids must give Ease: But I assure you, I have often experienced the contrary; for upon the Exhibition of *Rhenish, White-wine* and other Acids, I have found the [*Gouty*] Pains immediately exasperated, and many times it has been a long while ere they went off.

I shall not repeat your whole Answer to this, but sum up the most material Parts of it. *Answ.* It is not improbable, but upon giving a small quantity of Acid, where there is a large quantity of Alkaly lodg'd on any Part, so as to cause Pain, it may only in part dissolve the Alkaly, which was before more fix'd,  
and

and so by accident exasperate the Pain, whereas by continuing the Use of the Acid, the Alkaly would be perfectly dissolved and extirpated, and so the Pain would altogether vanish. But Pain being sometimes exasperated more upon the first giving of them in too small Quantities, has, I doubt not, been one great Cause of deterring People from proceeding in the Use of them, and also of attributing to them the Cause of Pain. *Reply*, This I confess is a good sound Solution, and would admit of no Reply, if it did but hang together with what follows. For here Acids cause Pain, because they are not taken in Quantity sufficient: By and by they produce the same Effect, because they are taken in too great Quantity. For these are your own Words. And for the Pain you say, you have often found to be excited upon the giving *Rhenish* and *White-wine*, I have assign'd a Reason for that, if they are drunk in too large Quantities, &c. 'Tis plain then, that neither too little or too much Acid must be taken. Now I fancy it would be a difficult Matter for you or any Man else to determine the Quantity. 'Tis enough

to employ the Wits of a *Virtuoso*. Besides, if you remember what you have laid down in your *Hypothesis*, Acids cannot be taken in too great Quantity : For the Alkaline Gouty Particles remain in the Blood : Indeed, if all these Particles were subdued, then to load the Blood with Acids would be superfluous. But this I fear you cannot say, you ever experienced. I should be very glad to hear you could. It would be an Improvement of Physick to some purpose, Another *Object*. was. Again, if the *Gout* proceed from an Alkaly, what is the Reason you use so much *Sassafras* in it's Cure ? Is *Sassafras* an Acid, and so proper to subdue this Alkaly. *Answ.* I can cure the *Gout*, if there were no such thing as *Sassafras*. I only use *Sassafras* in *Apozems* as a proper Vehicle to dilute other Medicines in the Stomach. But however *Sassafras* is no contemptible Medicine, and if you will but give your self the Trouble of distilling a Pound in *Retort per se*, if you afterwards reckon *Sassafras* amongst the Number of Alkalies, I am mistaken ; and if I am I shall willingly own it. *Reply*, That you should use *Sassafras* on purpose to dilute

dilute other Medicines, methinks is no fair way of arguing. I did never distill any *Sassafras* in a *Retort*, and therefore can pronounce nothing positively of it's Nature. But I am of Opinion, that by it's Effects it may much better be ranged under Alkalies than Acids. I fear 'twill be a hard task for you to prove it an Acid, which yet you ought to do to make your Practice consonant to your *Hypothesis*, unless you will have recourse to it as a Specific. *Object*. I have only a Word or two to speak concerning the green Colour of Syrup of Violets, and so I have done. I believe it may be turned green without an Alkaly. On the Exhibition of it to Infants it comes away green very often, and brings away a great deal of green Matter by stool; and yet I believe they do not abound with Alkalies. *Answ*. I own that upon the Exhibition of Syrup of Violets to Infants, it will frequently occasion green stools: But from whence doth that proceed, but from it's Mixture with the Bile in the small Guts? And that Bile is an Alkaly, I know not any one that doubts. *Reply*, Every body knows that Bile is an Alkaly and of



a greenish Colour: yet 'tis much to be questioned, whether it occasions these green stools. For *First*, The Colour of it is altered in the *Duodenum*, by it's mixture with the *Pancreatick* Juys. *Secondly*, If this were so, whence is it that in adult Persons, even of the most Bilious Constitutions, we seldom or never find the Excrements green. The yellow Colour of the Excrements is usually imputed to Bile. *Object*. You may read in a late Author of undoubted Credit, that upon an Infant's swallowing a Dose of *Testaceous Powder*, an extraordinary Ferment was raised in the Stomach of the Child. Now how could this be done if it had not an Acid to work upon? Besides does not Experience shew, that nothing is so proper in Infants Distempers as Alkalies? *Answer*. Acids may abound in the Stomach and cause a Disorder, but in no other Parts of the Body. *Reply*, This Doctrin seems to me very precarious; and if I can but shake it, a great Part of your *Hypothesis* must be in danger. *First*, then give me leave to enquire, how these Acids come to abound in the Stomack. Here you are pleased

to deny an innate Ferment : This Acid Liquor must by no means proceed from the Vessels or Glands of the Ventricle : But is convey'd thither from the salivatory Glands. That *Saliva* is an Acid, and does descend to the Stomach is very evident. But why you should take no Notice of it's proper Glands, I cannot see. Nature does seldom bungle in her Operations, and dispose things at random. Therefore since she has placed such a parcel of excretory Vessels in the Stomach, 'tis irrational to suppose they are of no Use. But to come to the Point. I hope to convince you presently, that Acids exist in the Blood as well as the Stomach. And in order to this, I shall have no need to carry them from the Stomach to the Blood, as some have done ; but shall endeavour to prove them preexistent in the Blood, even by the Rules of your own *Hypothesis*. We have an old Maxim in Philosophy ; *Nihil dat quod in se non habet*. How this Acid current of *Saliva*, therefore should spring from a Fountain void of all Acidity (for the *Serum* must be it's Fountain) I cannot so easily conceive. If any thing was capable of

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metamorphosing this Alkaline Serum into Acid, it must be the Texture of the Parts, thro' which it passes. But this the Texture cannot do. For the Oral Glands have nothing of an Acid Ferment in them, or any alterative Faculty. They only separate such Particles as are adapted to their Pores. 'Tis true these Particles before their Separation are so confus'd and intermix'd with the other Principles, that you cannot make any sensible Discovery of them; yet 'tis no good Logic to conclude, that they are not in the Blood. 'Tis very seldom that we can perceive any thing of Bile in it when drawn either by Colour or Taste, yet surely 'tis never without Bile. And the Liver does not generate *Choler* (as some ignorantly suppose) it only strains it off from the Blood. For if it's Glands are any way impaired either by *Schirrus*, *Exulceration*, &c. the Blood is so far from wanting *Choler*, that it immediately abounds with it; wherefore since Bile is really preexistent in the Blood till to it's Separation, 'tis very rational to suppose that Spittle is so too: For they are both percolated after the same Manner, tho' not thro' the same Glands.

And

And indeed I admire that your repeated *Analyses* of the Blood should produce nothing of an Acid. I had almost said, you overlook it : If we may believe Mr. *Boyl*, the Blood is not without Acids. And give me leave to tell you, that you do not deal fairly with Alkalies ; you derogate from the Dignity of their Nature, when you make them wholly excrementitious. Is there a more noble Juyce in human Bodies than Bile, than Alkalized Bile ? Sure I am, no true Concoction can be performed without it. A thousand other good Offices might be attributed to it. This is all *Sir*, I have to offer in maintenance of my Objections. If I have exprest my self indecently any where, do not impute it to Rudeness or Disrespect . Your good Nature cannot but easily find out the true Occasion of it. God forbid I should treat you as a Gentleman has lately done. I think we are all of us obliged to you for your Care and Industry. Whether Acids are of universal Use, will be determined in time. I believe they will never prove so. But certainly they are of some Use : And in this you have gained a considerable Point,

Point, and done the World very eminent Service. For many of our old Galenical Brethren had a great Antipathy to them: Nay the most moderate Use of that mild Acid, Vinegar has been declaimed against for souring the Blood: And for other Acids of a stronger Nature, they have represented them to their Patients as hurtful as the Venom of a Mad-dog. Your Enemies cannot but acknowledg the Generosity of your Temper in your not being discouraged at the Snarls of such *Cynicks*: Nor even at the base and villainous Practices of some *Chyrurgeons*; who have meditated against your Life, because you have put them in a fair Way to save that of others. I should here conclude, and make no farther Observations on your *Hypothesis*, but that you desire me and every one else, before we take up with any Thing that comes from you, to examin it in the Balances of Reason and Experience. Pardon me therefore, if I adventure to examin some Passages in your *Essay of Alkaly and Acid*:

## O F T H E

## Small-Pox.

THE first Thing that occurs there is the *Small-Pox*. You suppose it (in pages 3 and 13.) to proceed from an *Intrusion* of *Heterogeneous Particles*, or Particles of a different Nature and Texture from the Blood, into it: By means of which Particles the Blood is put into a very great hurry and disorder, in order to throw off its Enemy: And that the Place that Nature designs the Discharge of these Particles by, is the Cutaneous Glands. Now the Inconveniences that you observ'd to attend the Use of Alkalies, where the throwing out of more Pus than Nature designed, the destroying the Globules of the Blood, and a waste of too great Quantity of Serum. This Hypothesis, how in-

ingeniously soever contrived, I fear will look somewhat strange by and by, especially when compared with your Practice. Well then, the Occasion of the *Small-Pox* is an *Intromission* of *Heterogeneous* Particles. Here you term the *morbifick* Particles *Heterogeneous*, but do not much care to fix the Nature of them, I suppose they must be of an Alkaline if any. For nothing but Alkaly with you is the Principal of Destruction. Now I shall endeavour to prove that these *intromitted* Particles cannot well be of an Alkaline Nature: And tho' they were so, that a moderate Use of them could not be always Prejudicial, but sometimes of great Advantage. *First* then, these Particles cannot be Alkaline, because no tolerable Account can be given from the Rules of your *Hypothesis*, how these Alkalies should excite such a disorderly Motion in the Blood. The Globules you say are broken, but you explain not the Manner of their being broken. They must either be broken by Accension (the vital Flame burning very furiously) or by Fermentation? 'Twill be very difficult to find out another Way. Now  
Alkalies



Alkalies cannot well accend the Blood ; Acid and Sulphur ( with you ) being the only *Pabulum* of Flame. Ashes or Alkalies should rather choak it. But here I only argue against your *Hypothesis* of *Accension*. I do not deny but Alkalies may raise some slight disorders in the Blood. They may occasion some Fevours. But they are never so ill natured as to break the Globules. Acids are much better armed to do this Work. Neither *Secondly*, Can they be so easily found guilty of Fermentation ; since you exclude all Acids from the Blood. These Salts do not use to be so nimble, they are dull enough of themselves, unless an Acid Antagonist rouses their Courage. But *Secondly*, grant these *intromitted* Particles were Alkaline ( which you have not proved hitherto ) yet Alkalies could not be always improper in this Distemper. Indeed when the Blood runs High, and it's Motion is very violent, then to add Alkaly, to the *intromitted* Alkaly would be highly pernicious. But if this Motion is naturally weak, or is accidentally check'd, so as to be unable to promote an Excretion

on of the Particles, what harm is it to help it on with Alkalies? There is nothing more usual than upon taking Cold, or by too liberal an Use of cooling Liquors, for the *Pox*, as soon as they appear to strike in again ( as they call it ) or vanish : And if they do not strike in, they mature very slowly, the Patient being fevorish all the while. In such a case as this, you may give Acids *ad infinitum* to no purpose, or allow your Patients as much small-Beer as you please ; it shall not fill up the *Pustules* ; 'twill be a hard Matter for Dame Nature to escape a drowning. And I appeal to your Learned Society, if upon such Accidents as these, *pulv. e chel. marg. pp.* and above all *ead. Serpentar. Virgin.* are not of wonderful Use. Indeed in a *Confluent-Pox*, you may bleed, indulge small-Beer liberally, give Acids ; and all will not stop, they will but regulate the Motion of the Blood : But if you should observe the same Method in more gentle *Poxes*, 'tis much but the Patient pays dear for it ; and therefore you act like an honest good *Physitian*, being more tender of others Lives than your own



own *Hypothesis*, in prescribing nothing of Acids in *Variolis Benignis*. Neither is it good ( I confess ) to tamper too much with Alkalies here. But this I assure you ( having often engaged with this Distemper ) that I never saw the *Testaceous* Powders moderately administered produce any ill Effect even in the most favourable *Poxs* : Which is more ( I verily believe ) than can be said of Acids. And here I cannot but take notice of one Thing, which I omitted in it's proper Place. Alkalies you acknowledge are good Medicines for Children, because they are of a mild Nature. Are there not Acids of a mild Nature as well as Alkalies ? Why then do you not exhibit those mild Acids ? Indeed you prescribe them in some particular Cases not without Success. But they will hardly ever be found so generally effectual as Alkalies. But to return to the *Small-Pox* : You displease me in giving *Syrup. de Meconio*. even upon their first Invasion. Methinks, it should hinder their Eruption. The worthy *Sydenham*, that true Patron of a cold Re-

gimen, seemed to be sensible of this, and therefore never prescribed it till they were all come out. One Word more and I have done with this. If the *Pox* were occasioned by the *Intromission* of *Heterogeneous* Particles, a Man might as well labour under them ten times as once. But this is contrary to Experience, I never saw any Man that had the true *Pox* twice.

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OF THE

## Scurvy.

**T**HAT the *Testaceous* Powders are of no great Use in the *Scurvy*: That there is something of a *Lixivious* fix'd Alkaly in *Scrobutical* Blood: That *Tartar* and it's Preparations are proper to correct this Salt, I verily believe. And yet notwithstanding all this, there are a Sort of Alkalies in the World that may be seasonably apply'd even in this very Distemper. 'Tis well known that the Stomach as well as Blood of *Scorbutil* Persons is often out of order. They complain of a bad Appetite and worse Digestion. Now tho' *Tartarous* Medicines may do something toward the removal of the ill Symptoms of the Stomach as well as those of the Blood: Yet they do not operate so powerfully

as your digestive bitter Herbs, whose Salts are undeniably Alkaline.

Indeed, if you give the Bitters by themselves to some *Scorbutical* Constitutions, they will warm their Blood a little too much. And it may not be amiss to prescribe Acids with them. For since, neither will work a Cure separately, the best way I think is to unite their Forces. Not but that Acids by themselves ( I grant you ) will do the business, where the *Ventricle* is under no Indisposition. But by the way you do not seem to have answer'd a considerable Objection, which has been started against your *Doctrin* of the *Scurvy* in your *Appendix*. *Objection*, You say, that the *Scurvy* is occasioned by too great a Quantity of *Alkalious* Particles in the Blood, and is only cured by Acids. If so, how comes it to pass, that those People who live upon nothing almost, but highly-seasoned Meat, are more troubled with the *Scurvy* than other People, when you own Salt to be an Acid? *Answer*, This does not proceed from their eating a larger Quantity of Salt than other People, but from their eating more Flesh and Fish than other People,

ple, which abound with *Alkalious* Particles, and the Moistness of the Air. *Reply*, Whether a moist Air breeds the *Scurvy* is much to be questioned; but that a salt Air will is very plain, 'Tis observable, that those People which live in the most Fenny Places of our Inland-Counties, are not so miserably Plagu'd with this Distemper, as others which dwell in Hilly Places, if by the Seaside. There is hardly a more dry Mountainous Country in *England* than the *North-part* of *Devonshire*, and at the sametime no Place more miserably over-run with the *Scurvy*. What Reason can be given for this, but the Saltness of the Air? And I have observed that the meaner Sort of the same County, whose Diet is chiefly on *Irish* Beef and *Newfoundland* Fish, are much more obnoxious to this Disease than others, who eat greater Quantities of unseasoned Flesh and Fish.

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O F

# Rheumatisms.

**A**S for *Rheumatisms*, tho' something might be objected to your Notion of the *Serum's Viscosity* in that Distemper, yet I shall wave it: We will not quarrel about the *Theory*, when we agree well enough in the *Practick*.

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# Consumptions.

COME we last of all to *Consumptions*: And here you make Acids very beneficial. This Assertion of yours, tho' it strikes an Eight to your *Hypothesis*, will hardly do so to Experience: 'tis flatly repugnant to it. You cannot be insensible that a *Catarrh* is the usual Harbinger to this fatal Distemper: That in all *Catarrhs* the Blood is in a Fusion; as is evident from the continual Excretion or Distillation of *Rheum* from the Glands of the *Pharynx* upon the Lungs, and it's throwing out great Plenty of clear Spittle (*alias* clear Acid) from the *Salivatory-ducts*: And you know well enough that Vinegar, Lime-Juyce, Stale-Beer, Sower-Wines, &c. are so far from allaying this

this *Fluxion*, that they incontinently promote it. Be pleased then but to meditate on these Premises, and the Conclusion will be obvious enough. You talk indeed of Oyl of *Sulphur*, that it has wrought great Cures in a *Phthisis*: But did you ever see these Cures? You are not pleased to give one Instance of this kind: Tho' you furnish us with several on other Distempers, to confirm your *Hypothesis*. You quote *Helmont* for a Story of an old Souldier, that was strangely preserved by Oyl of *Sulphur*. But the Man was not at all *Consumptive* as I can find. It must be confessed in *Asthmatical* Cases, where the Phlegm is very thick and viscous; and the *Serum* it self glutinous; that Oyl of *Sulphur* may be of excellent Use by reason of it's inciding or attenuating Faculty. But in a *Consumption*, properly so called, it seems to be destructive to all intents and purposes. I should now make an End; but that I meet with something in the *Appendix*, that I cannot well pass by. 'Tis honest Mr. *Kemp's* Encomium on Vinegar. That a moderate Use

Use of Vinegar may be agreeable to some Constitutions no body can deny; tho' I fear an immoderate to none at all. That *Acetum*, especially when mix'd with *Alexipharmacks*, is a noble Medicine even in pestilential Distempers is more than probable. But I am sure 'tis far from being a *Panacæa*. Let a lean Man eat Vinegar till dooms-day, he shall not improve his Habit of Body, or grow fat upon it; notwithstanding you assert Fat to be generated of Acid Particles. I shall not anatomize your Notion of Fat at present, or the Manner of it's being made. Suffice it to observe to you that I never heard of this pinguefying Virtue of Acids till now. I could give you many Instances to the contrary; but I believe no body will be angry with me, if I spare my Pains. However I shall single out one to satisfy you, that Acids are hurtful in *Catarrhs*, and are too apt to make Men lean. A certain Gentleman, whose Name you know (but I must not mention it) was highly seasoned about 14 Months time with the *Scurvy*. He had a great Fancy, that *Sevil-Oranges* and  
 Le.

Lemons would rebuke this Malady : Accordingly furnishes himself on the first opportunity with a large Parcel of them. His Medicines proving so pleasant, he dosed himself very liberally with them, and eat several of them in a day. Observe the Event, he had not continued this Course above a Fortnight, before he fell into a most violent *Catarrh*. He soon became sensible of his Error, threw away the Residue of his Fruit, and timely applied himself to astringent and agglutinating Medicines, some Alkalies being intermix'd. Notwithstanding the daily Use of these wholesome Prescriptions, he grew very thin, his Cough troubled him much; and 'twas a considerable while e're he recovered the Fault. This is all I have to offer against you : I believe we might be reconciled if you would but let fall your *Hypothesis* a little, and not strain it quite so high. Acids no doubt are of Use, and so are Alkalies too. Wherefore, if we consult our own, or our Patients Safety, *medio eamus*. I have only one Thing  
to

to beg of You and the Reader, That  
 you would Pardon what you see a-  
 miss in these Papers. Which I hope  
 you will do the sooner, upon Promise  
 of my arresting my Pen, and never  
 troubling the World again with the  
 impertinent Notions, of

S I R,

*Your Friend*

*and Servant*

FRANCIS TUTHILL.

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F I N I S.